TWEED DISTRICT

FISHERIES MANAGEMENT PLAN 1987-2000

Ontario

Ministry of Natural Resources

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PREFACE

The purpose of the Tweed District Fisheries Management Plan is to outline the long-term direction of fisheries management efforts in the Tweed District for the period 1987-2000. Further, it provides a way to measure the accomplishments of the district fisheries management program by both the managers and the public.

This document briefly describes the planning framework followed and provides an overview of the fisheries resources of the Tweed District, including significant information affecting their management. Fisheries management objectives and targets are stated and strategies and tactics to meet them are identified. An implementation schedule describes in detail how, when and where fisheries management activities in the five year period 1987-1991 are planned to be carried out. The actual timing and cost of specific projects will be determined in annual work plans.

Yearly updates of the implementation schedule and periodic revisions will keep the District Fisheries Management Plan current and responsive to changing needs and conditions.

District Manager — Date: April 20, 1988

Regional Director — Date: Oct 27/88

1.0 INTRODUCTION

1.1 PURPOSE

The purpose of this Management Plan is to provide long-term (1987-2000) fisheries management direction and to identify specific short-term (5 year) management actions to be carried out in the Tweed Administrative District of the Ontario Ministry of Natural Resources (Fig. 1 and Fig. 2).

1.2 PLANNING PROCESS

The Tweed District Land Use Guidelines (DLUG) established long-term goals and general management direction for the natural resources in Tweed District. The Tweed District Fisheries Management Plan identifies how the fisheries resource in the Tweed District will be managed in order to achieve the goals established for the fisheries resource in the District Land Use Guidelines.

Detailed fisheries management strategies and a 5 year implementation schedule outlining the specific tactics scheduled for each year, are set out in this fisheries management plan. Strategies were developed and selected in accordance with the goals and principles of fisheries management in Ontario as stated in the Strategic Plan for Ontario Fisheries (SPOF).

Yearly updates of the implementation schedule and periodic revisions will keep the District Fisheries Plan current and responsive to changing needs and conditions.

Public involvement was encouraged in the development of strategies and in all phases of the plan preparation. The results of public consultation have been summarized in Appendix 1.

1.3 BACKGROUND REPORTS

Detailed background reports have been prepared which form the basis for the management direction described in this plan. The management plan only highlights some of this background information. The following detailed background reports are available for public review at the Tweed District Office :

1) Background Information

   This includes for each lake in the district : the fish species present, the total weight of each fish species that can be harvested each year without over harvesting the fishery (called "allowable yield") and summaries of angler creel surveys.

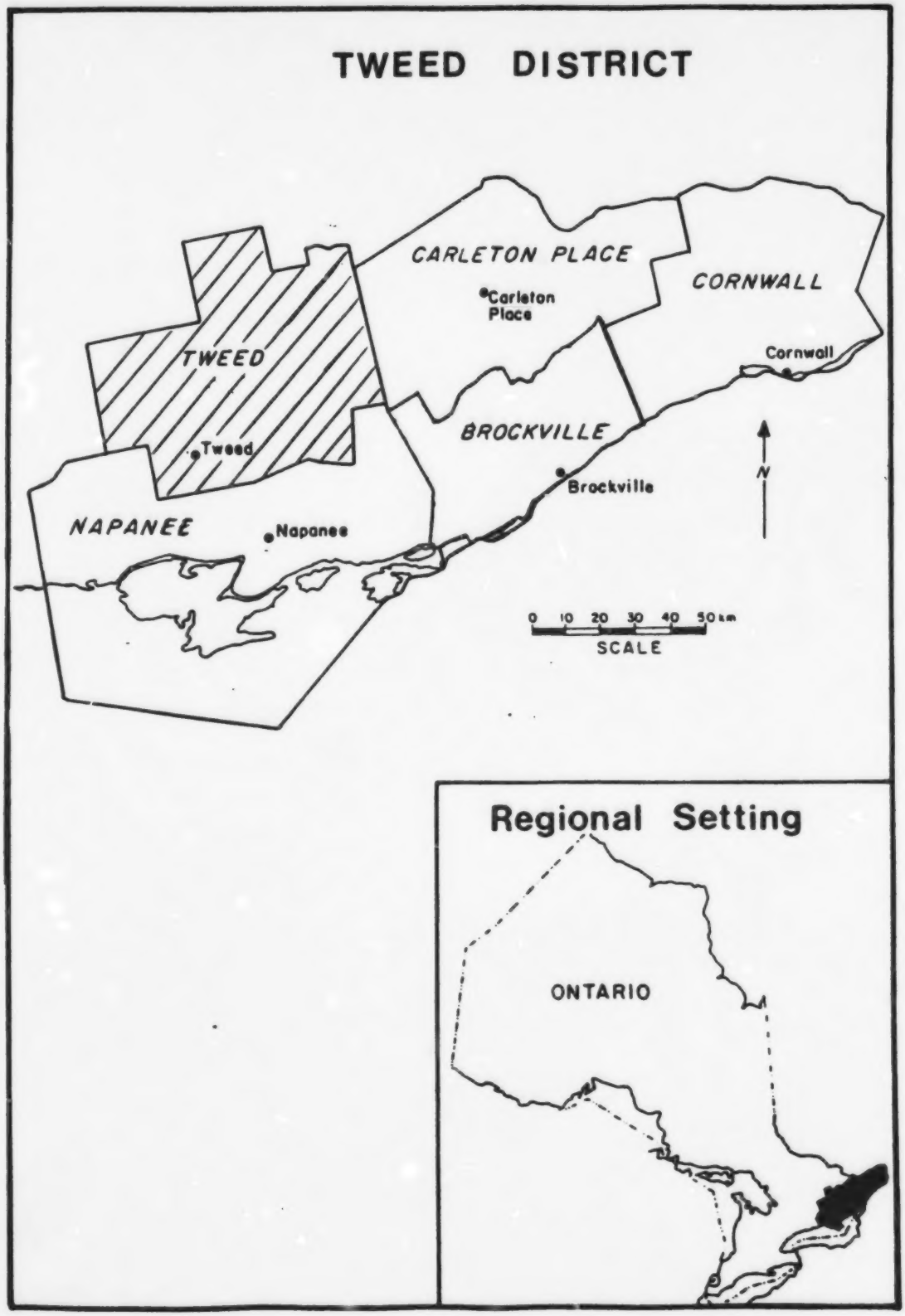

FIGURE 1. Tweed District Boundaries and Regional Setting

TWEED DISTRICT

LEGEND

- Public land
- Private land
- Ministry of Natural Resources
- Conservation Authorities
- Agreement forest

LAND OWNERSHIP

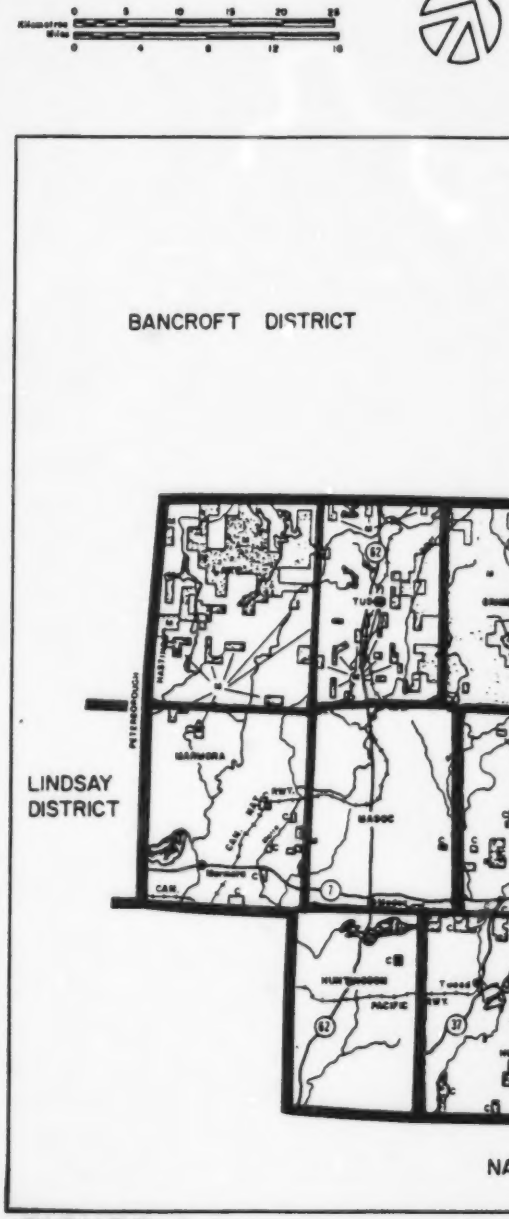

FIGURE 2 TWEED ADMINISTRATIVE DISTRICT

2) Target Testing Analysis

A re-evaluation of the fisheries targets assigned in DLUG.

3) Optional Management Strategies and Tactics

A list of suggested strategies with advantages and disadvantages of each.

4) Draft Fisheries Management Plan

5) Public Consultation Summary

2.0 DISTRICT FISHERIES PERSPECTIVE

2.1 BACKGROUND INFORMATION

2.1.1 The Resource

Tweed District is located in the transition zone between the rugged, rocky and infertile Canadian Shield and the relatively flat, fertile, Southern Lowlands. There are 126 coldwater lakes and 344 warmwater lakes in the district (Fig.3, back cover pocket) with a variety of fish species present (Table 1). Of the district's total water area, 29% is accounted for by coldwater lakes (lakes with trout present) and 63% by warmwater lakes (lakes without trout). The remaining 8% is comprised of small lakes less than 5 hectares in size and rivers and streams.

The allowable yield of Tweed District waters or the total weight of all fish species that may be removed from the waters in Tweed District each year without overharvesting the fishery, is estimated to be 223,600 kg. Sportfish make up approximately 80% of the potential yield for the district. The remaining 20% is comprised of other species such as bullheads, burbot, white suckers, and rock bass. Approximately 90% of the sportfish allowable yield is made up of warm water species (Table 1), whereas coldwater species only make up 10% of the sportfish potential yield.

Baitfish are present in most waters in Tweed District but no method currently exists for assessing baitfish potential yield.

2.1.2 Resource Use and Projections

Sportfishing is the major use of the Tweed District fisheries resource (Table 2) and tourism based on fishing is an important source of income and employment in the district. Based on the results of the 1980 Provincial Angler Survey, 85% of the angling in Tweed District is by Southern Ontario residents whereas 15% is by residents of the United States.

An estimated 254,300 angler days (1 angler day equals 4 hours) of fishing effort occur each year in Tweed District. Most of the present fishing effort (73%) is directed at warmwater fish species. Of an estimated 160,200 kg. of sportfish currently harvested each year, warmwater species account for 88% of the catch and coldwater sportfish account for the remainder. Other species such as burbot, suckers, rock bass and bullheads provide additional angling opportunities but estimates of harvest are not available.

It is projected that by the year 2000 both angling effort and the corresponding harvest of fish will have increased by 15% over current levels.

Commercial baitfishermen are the only other significant users of the fisheries resource, currently harvesting 217,329 (1986) dozen

TABLE 1 : TOTAL POTENTIAL YIELD BY SPORTFISH SPECIES, TWEED DISTRICT

COLDWATER SPORTFISH	NUMBER OF WATERS WITH SPECIES PRESENT	TOTAL WATER SURFACE AREA WITH SPECIES PRESENT (HA)	ALLOWABLE YIELD (KG/YR)
LAKE TROUT	30*	9,770	6,380
BROOK TROUT	64	650	2,010
RAINBOW TROUT	14	530	1,200
SPLAKE	21	850	1,730
BROWN TROUT	1	40	130
LAKE WHITEFISH	8	8,620	5,600
TOTAL, LAKES			17,050
STREAMS			30**
TOTAL COLDWATER SPECIES			17,080
WARMWATER SPORTFISH			
NORTHERN PIKE	255	24,380	35,310
MUSKELLUNGE	22	3,700	3,450
SMALLMOUTH BASS	231	31,610	46,430
LARGEMOUTH BASS	204	25,230	17,500
WALLEYE (YELLOW PICKEREL)	96	20,730	31,680
YELLOW PERCH	212	30,410	20,650
TOTAL , LAKES			155,020
STREAMS			8,300**
TOTAL WARMWATER SPECIES			163,320
TOTAL ALL SPORTFISH			180,400
TOTAL OTHER SPECIES (e.g. burbot, rock bass, suckers, etc.)			43,200
TOTAL ALL SPECIES			223,600

* LAKES MANAGED SPECIFICALLY FOR LAKE TROUT

** NOT DIVIDED AMONG SPECIES

TABLE 2 CURRENT USE, PROJECTED USE, RESOURCE CAPABILITY AND REFINED TARGETS FOR TWEED DISTRICT

	CURRENT USE		PROJECTED USE		RESOURCE CAPABILITY (BASED ON ALLOWABLE YIELD)		REFINED TARGET	
COMMERCIAL FISHERY								
BAITFISH	217,329 DOZ.		250,000 DOZ.		NOT AVAILABLE		250,000 DOZ.	
SPORT FISHERY	KG	ANGLER DAYS	KG	ANGLER DAYS	KG	ANGLER DAYS	KG	ANGLER DAYS
RESIDENTS	136,200	216,200		248,600				
NON-RESIDENTS	24,000	38,100		43,900				
TOTAL	160,200	254,300	184,200	292,500	223,600 a	535,500	179,800	292,500
SPECIES ASSEMBLAGE								
COLDWATER SPORTFISH	18,700	69,800	21,500	80,300	17,100	85,500 b	17,100	80,300
WARMWATER SPORTFISH	141,500	184,500	162,700	212,200	163,300	326,600 c	162,700	212,200
OTHER(BURBOT, ROCK BASS, SUCKERS, ETC)					43,200	123,400 d		

a - sportfish species total
b - catch standard = 0.2 kg/angler-day
c - catch standard = 0.5 kg/angler-day
d - catch standard = 0.35 kg/angler-day

* The refined targets have been derived from the projected use for the year 2000, within the limits of the resources capability.

baitfish annually (Table 2). The baitfish demand is expected to increase with the projected 15% increase in angling by the year 2000.

There are no commercial food fish operations in Tweed District.

In summarizing the background information and to understand how targets (Table 2) are assigned, the values that should be kept in mind are :

1. The number of kg. of fish of all species the Tweed District can provide on an annual basis (potential yield) is 223,600 kg/ year. Of this, 180,400 kg/year can be provided by sportfish species whereas 43,200 kg/year can be provided by other species such as burbot, suckers, bullheads, rock bass and pumpkinseed.

2. The present use of the sportfisheries resource in Tweed District is equivalent to 254,300 angler days/year and 160,200 kg/year harvested. This information was derived from district creel surveys.

3. The estimated use of the fisheries resource in the Tweed District by the year 2000 is 292,500 angler days/year and 184,200 kg/year harvested.

To determine the potential number of angler days that are represented by the 223,600 kg. of fish that can be harvested annually in the Tweed District, it is necessary to estimate the average number of kg. of fish caught on each angler day. This is called the "catch standard". An average catch standard of 0.2 kg per angler day was used for cold water lakes and 0.5 kg per angler day was used for warm water lakes. (Table 2)

The supply (resource capability) for cold water sport fish is somewhat less than the anticipated demand by the year 2000. This management plan outlines a number of strategies and tactics to reduce fishing pressure on those coldwater lakes that are being overexploited and descriptions for providing additional cold water angling opportunities throughout the district.

The resource capability for warm water sport fish is greater than the anticipated demand by the year 2000. Tweed District appears to be capable of supporting the projected angling use for warm water sport fish.

The Tweed District expends approximately 320 man-days of sport fisheries enforcement each year. This is expected to be increased by approximately 40 man-days by the addition to staff of a Fisheries Technician - Conservation Officer in 1987.

Just over 50% of the fisheries enforcement effort has been expended during the spring fish runs and around the opening of the walleye, bass and muskellunge seasons. The winter ice fishing effort has accounted for approximately 30% of the total enforcement effort with the trout species having the main emphasis. Routine summer

patrols and habitat enforcement make up the remaining 20% of the fisheries enforcement component.

2.2 PROBLEMS AND ISSUES

2.2.1 SPORTFISHERY

Although from the preceding discussion it generally appears that Tweed District has the potential to meet the projected demand for the fisheries resource, this is misleading. Calculations of district potential yield assume that all waters : are equally accessible, receive equal angling pressure, have no stresses affecting fish production and have equal angling pressure on all species. These assumptions are not entirely valid however, and in order to meet the demand for sportfish several of these and other problems must be addressed :

1. Overexploitation

Overexploitation occurs when harvest exceeds the production capabilities of a lake or stream. Continued overexploitation can lower a lakes productivity to the point where a lake is unable to achieve its allowable yield. It can also lead to the loss of self-sustaining stocks. This is a serious concern in lake trout waters e.g. Eagle Lake and some walleye waters, e.g. Crowe Lake in Tweed District. Regulation changes aimed at reducing lake trout harvest in the district, such as the one fish limit and one line in Division 29 appear to have been successful in reducing exploitation to more acceptable levels. The recent regulation change eliminating the winter season for lake trout in Division 9 is also intended to reduce the harvest and allow the lake trout lakes in that Division such as Eagle Lake to maintain a harvest at or below their allowable yield.

2. Underutilized Waters and Species

Annual yield estimates for the district assume that all waters and species are fished equally, however this is not the case. Many waters and species e.g. lake whitefish, burbot, yellow perch, bluegill, and pumpkinseed receive low angling pressure and the potential yield for these species is not being harvested. As a result the recreational opportunities are not being distributed evenly.

3. Illegal Harvest

The illegal harvest of sportfish reduces the yield available to the sport fishery. Illegal activities are often concentrated during spawning periods and thus can greatly affect fish production. Examples include : spearing or snagging walleye during spawning runs, pre-season angling of bass from their nests and gill netting lake trout on spawning shoals. These problems occur in varying degrees in Tweed District.

4. Lack of Knowledge of Fish Communities

Inadequate knowledge of population abundance, growth rates, mortality rates and reproductive status hinders the ability to monitor and assess stresses affecting fish communities. This impedes the development of effective management strategies that could increase the current production of some waters. Many of the smaller lakes in Tweed District have not been surveyed and of the lakes that have been surveyed many require updating. Very few lakes in the district have recent creel census data or population studies.

5. Undesirable Introductions

Introductions, whether intentional or accidental, can have major effects on resident fish communities through predation competition or disease. Walleye introductions into lake trout waters e.g. Fortune Lake, smelt introductions into walleye and lake whitefish waters e.g. Skootamatta Lake, and introductions of yellow perch or bass into rainbow trout and brook trout waters e.g. Mosque Lake and Granite Lake, have all been implicated in the decline of the established sportfish populations.

The accidental introduction of species such as rainbow smelt or yellow perch through use as baitfish in trout waters has occurred in Tweed District and is a major concern.

6. Problems Associated with Fish Stocking

Fish stocking is essential to meet the district demand for coldwater sportfishing. Shortfalls in the availability of hatchery stock may hinder the ability to meet the demand. When stocking for rehabilitative purposes it is usually desirable to have large numbers of fish and to use a strain genetically similar to the native stocks. This is seldom possible due to limited hatchery space and the effort required for disease screening in order to raise a specific strain in the hatchery system. This impedes effective rehabilitative efforts.

In addition, the widespread stocking of hatchery fish may be diluting gene pools and the fitness of native stocks. For example, all but two district lake trout lakes (Crystal and Barnard Lakes) have been stocked at least once with hatchery-reared fish. The dilution of the genetic quality of the native stocks reduces the overall fitness of the native stocks and may have an effect on production capabilities.

Another problem associated with fish stocking is the size of the fish at the time of stocking. A number of studies have indicated the survival of stocked fish generally increases as the size of the stocked fish increases. Large, hardy fish tend to be less prone to predation and competition than small fish. Obtaining large fish for stocking is a problem.

7. Loss or Degradation of Habitat

The loss or degradation of fisheries habitat is a major factor reducing fish production and hindering the ability to meet the demand for sportfishing in Tweed District. This is attributed to the following :

i) Acidic Precipitation

Tweed District has 4 lakes that are classified as extremely sensitive to acidification. They are all located in Effingham Township. Feeny Lake is managed as a put and delayed take brook trout fishery and Machesney is managed for splake.

There are an additional 12 lakes that are classified as highly sensitive. The majority of these lakes are found in the northwest portion of the district, including Ashby, Effingham, and Denbigh Townships. A number of these lakes are managed for trout.

Although acidification does affect productivity many of these lakes provide good fisheries, particularily the stocked trout waters. Crystal and Barnard Lakes have excellent populations of self reproducing lake trout that appear to have adapted to highly acidic conditions.

The monitoring of lakes for acidification is the mandate of the Ministry of Environment and all sensitive lakes are monitored on a regular basis.

ii) Development

The main development related concerns are:

a) Water level drawdown

Water levels are drawn down for a number of reasons. Many lakes are drawn down in the fall and early winter to increase the lake's storage capacity to absorb the high flows in the spring to reduce the possibility of flooding. Other lakes are drawn down in the process of maintaining water levels or water flows at desired levels in the lakes or streams below a specific lake or reservoir. Water level drawdown on lake trout lakes in late fall can cause a high mortality of eggs and loss of available spawning substrate (e.g. Mazinaw, and Shabomeka Lakes). Spring water level fluctuations can also have serious effects on successful reproduction of walleye (e.g. Canonto Lake). Low water levels can result in the eggs drying out and high water levels can remove substrate and wash the eggs away.

b) Nutrient overloading

A number of development activities such as shoreline

alterations, timber removal and normal cottage use result in nutrients being added to a lake. Increased nutrient levels generally lower habitat quality by siltation of spawning beds, higher water temperature, lower oxygen levels and increased macrophyte and algae growth. These effects generally have the greatest impact on species that are extremely sensitive to water quality changes such as lake trout.

c) Shoreline alterations

Shoreline alterations such as dredging, filling and stream crossings can degrade water quality, spawning facilities and nursery areas and result in potential yields not being realized.

iii) Incomplete Habitat Inventory

Incomplete inventories of fisheries habitat, in particular the location, extent and quality of spawning and nursery areas impedes proper assessment of factors influencing fish production and the potential effects of shoreline alterations and water level fluctuations.

8. Lack of Public Awareness

This is a general problem not unique to Tweed District. The public is not aware of the importance of maintaining habitat, reducing overharvest and the potential effects of poaching. This lack of awareness has contributed to the problem of maintaining and enhancing the District fisheries resource.

2.2.2 BAITFISHERY

1. Lack of a Method for Estimating Baitfish Production

There is presently no method for assessing baitfish potential yield and it is not known how current and projected harvests relate to potential yields of baitfish in Tweed District. This hampers the development of effective baitfish management strategies.

The only method of identifying a possible overharvest at the present time is if local harvesters are experiencing shortages of baitfish on specific waters at specific times of year. However it must be recognized that many other factors play a role in shortages as well.

At the present time baitfish returns are of variable quality. The lack of quality of some returns, such as in the quantities of fish harvested, makes it difficult to estimate district harvest levels.

3.0 MANAGEMENT DIRECTION

3.1 GENERAL FISHERIES MANAGEMENT OBJECTIVE

The fisheries management objective of the Ministry as stated in the District Land Use Guidelines is to provide opportunities for recreation and economic benefits consistent with the maintenance of healthy fish communities. Although this objective provides overall direction for fisheries management in the province, in order to provide the district with more specific direction, district targets have been developed and were stated in the District Land Use Guidelines. The district targets are designed to meet the anticipated demand by the year 2000 and are within the capability of the local resource. To achieve each of these objectives and targets, specific management strategies have been developed.

3.2 SPECIFIC FISHERIES MANAGEMENT OBJECTIVES, TARGETS AND STRATEGIES

3.2.1 SPORT FISHING

Objectives :

To meet demand within the limits of a wisely managed and rehabilitated resource.

Target :

To provide 292,500 recreational opportunities by the year 2000.

Discussion :

A sportfishing target of 1,875,000 recreational opportunities to be provided by the year 2000 was stated in DLUG (1983). This target was based on a Provincial Angler Survey conducted in 1980 and is considered to be an overestimate of fishing pressure. It has since been re-evaluated using updated information and a more detailed approach than was used for developing the old DLUG target (see Target Testing Analysis (O.M.N.R.,1985)).

Based on population increase, it is estimated that by the year 2000, fisheries effort in Tweed District will be 292,500 angler days/year. The new sportfishing target therefore is 292,500 angler days of recreation per year by the year 2000. This value has been selected because it has been estimated that the district fisheries resource is capable of supporting this amount of angling without causing harm to the fisheries.

To meet this new sportfishing target while maintaining current harvest rates, 179,800 kg of sportfish will be required. This is approximately equal to the sportfish harvest that the resource is

capable of providing.

According to the Provincial Angling Survey (1980) and District fisheries questionnaires, walleye are the most important species in the district and have been given top management priority. Bass and trout species are also in high demand. Continued stocking of lake trout, brook trout, rainbow trout, splake and brown trout, will be necessary to meet the demand for coldwater sportfishing.

Although it appears that the district can meet the demand for sportfishing by the year 2000, a number of problems need to be addressed as discussed in the problems and issues section of this plan. Strategies to address these problems are listed in Table 3 and represent the preferred strategies selected from suggested options (see Evaluation of Optional Management Strategies (O.M.N.R. 1985)).

The identified problems listed below reduce the districts' capability to achieve its target of providing 292,500 recreational angling opportunities annually by the year 2000. The strategies discussed below are intended to eliminate or reduce the affects of the problems identified. The tactics provide the methods and options for carrying out the strategies.

Strategies

To provide 292,500 angling opportunities and a harvest of 179,800 kg of sportfish by the year 2000, the district will implement the following strategies and tactics that address the management problems listed below:

1. OVEREXPLOITATION

(i) Ensure that the harvest of sportfish is within allowable yields by:

- monitoring harvest by creel surveys

(ii) Reduce harvest when overexploitation is identified by utilizing such methods as:

- reducing creel limits
- adjusting seasons
- imposing size limits
- imposing gear restrictions

(iii) Provide additional angling opportunities by:

- stocking lake trout to enhance heavily exploited fisheries
- providing put-grow and take fisheries where appropriate and

in accordance with provincial guidelines

- stocking walleye in situations where the provincial experimental walleye stocking program has shown stocking to be successful, to enhance heavily exploited fishers, provide put-grow and take fisheries and establish new populations where appropriate and in accordance with provincial guidelines

- stocking brook trout, brown trout, splake and rainbow trout to provide put-grow and take fisheries where appropriate and in accordance with provincial guidelines

- encouraging the utilization of underutilizated species

- maintaining and enhancing the present access to the fisheries resource to maintain existing angling opportunities and improved access is encouraged to provide additional angling opportunities. A number of lakes on Crown land in Tweed District are accessed by forest access roads and a number of public launching ramps are maintained by the M.N.R.

- encouraging private landowners to allow access to lakes where appropriate

(iv) Provide a variety of angling experiences by:

- providing and encouraging the use of remote fishing experience by managing designated lakes as "remote" fisheries ie. restrict access, restrict development, for example Lingham Lake, Small Clear, Barker, Heath, Partridge, Crystal, Barnard, and Copeway Lakes. Many of these waterbodies are underutilized and can withstand additional angling pressure for those interested in putting in the effort to access these high quality fisheries.

2. ILLEGAL HARVEST OF SPORTFISH

(i) Reduce illegal harvest by:

- concentrating enforcement efforts during vulnerable periods (eg. spawning) and redirect efforts to areas of concern

- encouraging more severe penalties for infractions

- increasing the enforcement effort in the District by redirecting existing staff

- establishing sanctuaries at spawning areas where there have traditionally been problems with poaching

- initiating public education programs concerning the impact of poaching

3. UNDERUTILIZED WATERS AND SPECIES

(i) Divert angling pressure to underutilized waters and species by:

- actively promoting angling for underutilized speces eg. burbot, whitefish and panfish, and promote angling in underutilized waters
- promoting public education on how to catch, clean, and cook underutilized species
- improving access to underutilized waters where appropriate by agreements with private landowners eg. Glanmire, Little Green, Puzzle, Thanet, Sheffield lakes
- encouraging development of improved access to designated lakes in conjunction with road construction for timber activities, eg. Reid, Big Burnt, Rainy and a number of stocked brook trout lakes.

4. LACK OF KNOWLEDGE OF FISH COMMUINITIES

(i) Assess fish communities for reproductive status and for indications of stress by:

- determining species composition and abundance, monitoring spawning, determining growth rates, mortality rates and harvest rates, many of these parameters are indicators of overharvest

(ii) Monitoring fish populations, fish communities and the aquatic ecosystem for the health of the fish community and for the benefit of the users of the resource by:

- monitoring a selected number of lakes annually for contaminant analysis for the health and safety of the angling public in cooperation with the Ministry of the Environment
- assisting the Ministry of the Environment to monitor lakes that are sensitive to acid precipitation

(iii) Maintain close communication with Fisheries Assessment Units for information on "type" lakes similar to those in Tweed District by:

- setting up an information system for "type" lakes in Tweed District with input from Fisheries Assessment Units

(iv) Monitor fish populations in Tweed District and protect any populations identified as being rare or endangered by:

- protecting any known rare or endangered fish species. There are no known rare or endangered fish species in Tweed District at this time, however there may be fish populations

that are identified as being rare, for example it is suspected that the lake trout population in Crystal Lake may be genetically unique.

5. UNDESIRABLE INTRODUCTIONS

(i) Prevent unauthorized introductions of all species by:

- prohibiting the use of live baitfish in designated trout waters to avoid unwanted introductions
- enforcing existing regulations with regard to the use and release of baitfish
- undertaking a public education program on the effects of undesirable introductions

(ii) Remove undesirable species where possible by:

- undertaking fisheries reclamation projects in suitable lakes with established populations of undesirable species and then restock with desirable species in accordance with the regulations under the Environmental Assessment Act

6. PROBLEMS ASSOCIATED WITH FISH STOCKING

(i) Establish long term stocking and stocking assessment strategy by:

- assessing existing put-grow and take fisheries (splake, brook trout, rainbow trout, brown trout and lake trout) to determine use, survival and growth of stocked fish and to determine the presence of any limitations such as competitor species (especially spiny-rayed fish) or poor water quality and then decide on the future management of each lake

(ii) In rehabilitative and supplementary stocking programs such as lake trout stocking programs, encourage the use of genetically compatible fish stocks by:

- encouraging fisheries research into investigating the effects of stocking different strains of fish into various lakes

7. LOSS OR DEGRADATION OF FISH HABITAT

(i) Monitor effects of acid precipitation by:

- enouraging joint monitoring by M.N.R. and M.O.E. eg. monitor spawning rivers (Skootamatta)
- undertaking regular surveys of extremely sensitive lakes and rivers eg. Crystal Lake

(ii) In conjunction with M.O.E. ensure that lake trout habitat is

protected and is not impaired as a result of development and protect sensitive fish habitats, such as spawning habitat from degradation. The M.O.E./M.N.R. report entitled "Inland Lake Trout Management in South Eastern Ontario" (January, 1985), addresses water quality in relation to lake trout management. This report is to provide direction for managing lake trout with regard to development proposals, etc., by:

- identifying fisheries habitats of concern and making these available to Timber Division to be incorporated into Timber Management and Operating Plans
- providing input into development plans including stream crossings, dredging, filling, shoreline alterations, and cottage development, to protect fish habitat
- not permitting dredging and filling in lakes and rivers, unless it can be demonstrated that there will no adverse impact on fish habitat
- requesting municipalities, in areas where there are no conservation authority fill regulations, to enact by-laws to regulate filling and dredging activities on private lands
- protecting water quality on White Lake by restricting development and limiting human activities such as boating and fishing in order to maintain the quality of the water source for the provincial fish hatchery
- controlling aquatic vegetation removal and giving preference to mechanical harvesting when reviewing applications

(iii) Protecting fisheries habitat from water level fluctuations by:

- developing water management strategies and agreements that address fisheries concerns in cooperation with agencies that control water levels

(iv) Inventory and access fish habitat by:

- identifying and assessing quality and extent of spawning and nursery areas in Tweed District lakes
- conducting stream surveys
- monitoring water quality in conjunction with M.O.E.

(v) Enhance fish habitat where appropriate in Tweed District lakes by:

- rehabilitating, enhancing or creating fish habitat where appropriate eg. spawning and nursery areas
- undertaking stocking programs to increase fishing

opportunities, where opportunities do not exist to improve critical fish habitat

8. LACK OF PUBLIC AWARENESS

(i) Communicate conservation principles and encourage public involvement by:

- providing written material and giving presentations to the general public regarding wise utilization of the fisheries resource
- promoting participation in the Community Fisheries Involvement Program (CFIP)

3.2.2 COMMERCIAL FISHING

There is no assigned target for Tweed District.

3.2.3 BAIT FISHING

Objectives :

To maintain and to allow for a slight increase in the current (1986) baitfish production in the Tweed District which is currently 217,329 dozen baitfish annually.

Target :

To provide 250,000 dozen baitfish annually from natural sources.

Discussion :

The old DLUG (O.M.N.R. 1983) target of providing 28,500 dozen baitfish by the year 2000 has been re-evaluated. The projected baitfish harvest by the year 2000 (250,000 doz./year) has been assigned as the new baitfish target. This is much greater than the old DLUG target but is felt to be more realistic. The DLUG target was established based on the 1978 baitfish harvest level of approximately 26,000 dozen fish per year. The harvest of baitfish has increased tremendously since 1978 and in 1986 the district harvest was 217,329 dozen. In 1986 all of the baitfish blocks were occupied and none of the harvesters have expressed concerns regarding shortfalls. The refined target allows for a slight increase in the existing harvest level. Although no method currently exists for assessing the amount of baitfish that can be harvested on an annual basis without harming the fishery, it is felt that the resource is capable of supporting the proposed target level of harvest.

Strategies :

Tactics outlined below are designed to improve the utilization of the baitfish resource in order to meet the anticipated demand of 250,000 dozen by the year 2000. The district will :

- encourage development of a method for estimating baitfish potential yields.
- develop criteria for assigning baitfish blocks.
- assess current baitfish harvest strategies.
- enforce existing regulations pertaining to the capture and sale of baitfish.
- require baitfish dealers to submit accurate, detailed records of catch and sales.

3.2.4 PROVINCIALLY RARE AND ENDANGERED SPECIES

Objectives :

To prevent the extinction of any native fish species.

Target :

To ensure that no native fish species in the Tweed District becomes extinct.

Strategies :

Seek the protection of special fish habitat and rare or endangered species through appropriate designation, legislation or restrictions on access.

4.0 IMPLEMENTATION

4.1 GENERAL

This fisheries management plan provides the direction for fisheries management within the district to the year 2000. The strategies identified will be implemented through :

- the preparation, maintenance and annual updating of a 5 year implementation schedule identifying specific tactics necessary to meet the targets and strategies set out in this management plan ;

- specific projects and programs funded and approved through the Ministry's work planning process ;

- projects funded under various special fisheries programs ;

- participation in the planning and undertaking of projects/activities of other programs within the Ministry ;

- involvement in the review of project or development proposals of other government agencies and the private sector where the Ministry has the opportunity to review such proposals; and

- co-operative management efforts with clubs, associations, or municipalities.

All district fisheries management activities will contribute toward attainment of the objectives and targets identified in this management plan and generally be consistent with the strategies and tactics identified herein. Annual work plans will reflect the tactics and priorities established in this management plan.

Responsibility for the preparation of the Fisheries Management Plan has been assigned to the District Manager while responsibility for its approval rests with the Regional Director. The plan will be reviewed at 5 year intervals or whenever major revisions are necessary. Significant modifications will follow the same approval process as the original document.

Approved changes will be reflected in the District Land Use Guidelines and likewise, the Fisheries Management Plan may be revised to reflect major revisions to the District Land Use Guidelines.

Fisheries management projects to be undertaken in accordance with the Plan are subject to the requirements of the Environmental Assessment Act. As a result of complying with Class Assessment requirements there may be a change to the specific factors identified in this Plan.

4.2 IMPLEMENTATION SCHEDULE 1987-1991

Management tactics have been developed for each strategy and those that the Tweed District wishes to carry out during 1987-1991 have been identified in Implementation Schedule A.

Some of the management tactics will be undertaken with present levels of funding. These are identified as priority #1 projects. Routine fisheries matters such as administration, public relations, and enforcement are not listed. It is recognized that funding changes may affect the status of any of these tactics.

A list of management tactics which will require additional funding also appears in Implementation Schedule B. As funding becomes available the top ranked projects will be completed. The top ranked projects in this schedule will be included each year in the annual fisheries work program. Without the additional/supplemental funding of the projects, the fisheries management targets in the Tweed District cannot be met.

IMPLEMENTATION SCHEDULE A - TWEED DISTRICT

(PROJECTS TO BE DONE WITH EXISTING STAFF AND RESOURCES)

STRATEGY	TACTIC	YEAR	LOCATION	N/E	PROBLEM/ISSUE ADDRESSED
1. PROVIDE ADDITIONAL ANGLING OPPORTUNIIES	This strategy is intended to address the problem of overharvest. The additional angling opportunities produced are, in part, intended to relieve angling pressure on stressed lake trout populations.				
	(i)increase the combined daily lake trout/splake possession limit on lakes stocked with splake to 5	1988	Big Mair, Brooks, Egg*, Elzevir, Granite*, Grindstone, Labine, Limit, Little Green*, Little Long, Little Yirkie, Machesney, Spring*, (* limit is now 5 on these lakes)	N	This tactic is intended to divert angling pressure away from lake trout lakes. A regulation change will be required to implement this tactic. The present daily possession limit on these lakes is 1 lake trout/splake during the winter and 2 during the summer. The implementation of this tactic will result in an increased number of recreational angler-days
	(ii)increase the creel limit for lake trout from 1 to 2	1988	Division 29	N	A regulation change will be required. The creel limit of 1 during the winter season has reduced harvest. An increase in the creel limit will increase the angling recreational opportunities avail-

STRATEGY	TACTIC	YEAR	LOCATION	N/E	PROBLEM/ISSUE ADDRESSED
					able. Harvest will continue to be monitored to ensure overharvest does not occur.
	(iii) Pending the results of the experimental walleye stocking program, stock walleye into lakes with populations limited by inadequate natural reproduction. Stocking would be done as CFIP projects come on line or using fish produced in the provincial hatcheries (if stock is available)	1988-91	Fifth Depot, Kennebec, Big Gull, Puzzle, Sheldrake, Skootamatta, Crowe, Kashwakmak, Canonto, St. Andrews	N	Production techniques would include jar hatcheries and pond culture, adult transfers, and summer or fall fingerling plantings. Stocking would be undertaken when or if stock became available. This will increase walleye populations and possibly increase production therefore providing additional angling opportunities.
2. REDUCE HARVEST OF SPECIES WHEN OVER-EXPLOITATION IS IDENTIFIED AS A PROBLEM.	Creel surveys conducted on lake trout lakes in Division 9 have indicated a serious overharvest problem on a number of lake trout lakes. Continuous overharvest can seriously impair fish populations in these lakes.				
	(i) Implement winter closure on lake trout lakes in Division 9. The season would open from 1st Sat. in June to Sept. 8.	1987	Division 9 lake trout lakes (Eagle, Crowe, Sharbot, Loyst)	N	This regulation is part of the Eastern Region (MNR) Lake Trout Strategy, which will be reviewed for effectiveness in 1991.

STRATEGY	TACTIC	YEAR	LOCATION	N/E	PROBLEM/ISSUE ADDRESSED
3. PROVIDE A VARIETY OF ANGLING EXPERIENCES	Tweed District has some lakes that have limited access. Many of these lakes support high quality fisheries.				
	(i)Provide and encourage the use of remote fishing experiences by managing designated lakes as "remote" fisheries	1987-91	Lingham, Small Clear, Barker, Heath, Partridge, Steen, Crystal, Barnard, Copeway	E	Many of these water bodies can withstand additional angling pressure for those interested in putting in the effort to access these high quality fisheries. Many of these lakes have the potential to divert angling pressure from district waters more intensively exploited.
4. REDUCE THE ILLEGAL HARVEST OF FISH IN TWEED DISTRICT	The illegal harvest of sportfish reduces the yield available to the sport fishery. Illegal activities are often concentrated during spawning periods and thus can greatly affect fish production.				
	(i)Priorize enforcement efforts to ensure critical sportfish spawning periods and other critical times such as season closures and openings are covered. - walleye spawning in April - 85 mandays - preseason walleye, bass and muskellunge in May and June - 80	1987-91	District wide	E	The large number of lakes in Tweed District and the diversity of angling opportunities means that the enforcement capability of the District must be applied where it is most needed. Priorizing the enforcement efforts will ensure that major biological or social concerns

STRATEGY	TACTIC	YEAR	LOCATION	N/E	PROBLEM/ISSUE ADDRESSED
	mandays - overlimits for all species in July, August, September - 56 mandays - concentrate on trout species in the fall specifically lake trout shoal spawners in Oct. - 20 mandays - ice fishing, concentrate on trout species, specifically natural populations Jan. - March - 90 mandays - monitor illegal harvest trends and redirect efforts to areas of concern				are addressed first.
	(ii)Encourage public participation in the Report-A-Poacher program	1987-91	District Wide	N	Increased public reporting of violations will increase enforcement effectiveness as well as fostering an increased public awareness of the impacts of illegal harvest.
	(iii)Establish or investigate the feasibilty of establishing seasonal sanctuaries to	1990	Lingham Lake	N	A sanctuary will prevent illegal pre-season harvest of bass in this trophy fishery

STRATEGY	TACTIC	YEAR	LOCATION	N/E	PROBLEM/ISSUE ADDRESSED
	protect spawning walleye and bass in key areas	1988-90	Moira River (Tweed) Moira Lake	N	These spawning areas will be monitored and sanctuaries established if required.
	(iv) Initiate a public education program concerning fisheries related enforcement and the impacts of poaching by giving presentations to various groups, particularily to school groups.	1987-91	District Wide	N	Public education will lead to an increased level of understanding of the resource and result in greater compliance with legislation.
	(v) Increase District enforcement effort by devoting additional staff time to fisheries enforcement.	1987-91	District Wide	N	Priorizing staff time particularily during peak periods for fisheries enforcement will increase the district enforcement capability.
5. DIVERT ANGLING PRESSURE TO UNDER-UTILIZED WATERS AND SPECIES	Tweed District has many waterbodies that are underutilized. The lack of use is often associated with poor access. Many are in remote locations lacking road access and others have good road access but lack appropriate boat launching facilities. Similarily many fish species in Tweed District are underutilized. Species such as, burbot, whitefish, bullhead, and panfish have traditionally been underutilized.				
	(i) Install a boat ramp and parking	1987	Crotch Lake	N	Crotch Lake is a very large and important

STRATEGY	TACTIC	YEAR	LOCATION	N/E	PROBLEM/ISSUE ADDRESSED
	facilities on Crotch Lake.				fishery. The public access has limited parking and no boat launch. Improved facilities will provide better access for fishing and increase recreational opportunities.
	(ii) Actively promote angling for under-utilized species by encouraging their use through cottage association newsletters, meetings, and through general contacts with the public	1987-91	District Wide	N	Increased public awareness regarding the availability of fishing techniques and recipes for these species may increase the use of these species.
6. ASSESS FISH COMMUNITIES FOR REPRODUCTIVE STATUS AND FOR INDICATIONS OF STRESS	There are many lakes in Tweed District in which very little is known about the population status of the various fish species or the interactions of the fish community as a whole. Of particular concern is the monitoring of spawning runs and information regarding utilization.				
	(i) Monitor walleye and lake trout spawning runs.	1987-91	Walleye and lake trout lakes	N	There are a number of walleye and lake trout lakes that little is known about their spawning runs and productivity. Many of these lakes have considerable potential for habitat improvement work.

STRATEGY	TACTIC	YEAR	LOCATION	N/E	PROBLEM/ISSUE ADDRESSED
	(ii) Conduct a creel census to determine the winter harvest of lake trout.	1987-91	Lake trout lakes in Division 29 (eg. Palmerston and Brule)	N	In Division 29 the lake trout season opens on the second Sat. in March. It is proposed to increase the creel limit from 1 to 2 during the ice-fishing season. The increased creel limit combined with a lake trout season closure in Div. 9 and 10, make it necessary to monitor the trends in winter harvest.
7. PREVENT THE UNAUTHORIZED INTRODUCTION OF ALL FISH SPECIES	Undesirable introductions of fish species can in many circumstances have negative effects on fish communities. Of particular concern are unauthorized baitfish introductions into trout lakes. The increased competition and predation can seriously impair these fisheries.				
	(i) Ban live baitfish in designated brook trout, splake, rainbow trout, and brown trout lakes that presently have no competitor species and are providing good growth and survival of stocked fish.	1990-91	North Quinn, South Quinn, Sullivan, Spring, Spot, Raindrop, Evelyn, Grace	N	This will prevent the introduction of undesirable species via bait buckets and assist in maintaining the present trout yields and angling opportunities. A regulation change will be required. Additional lakes will be identified as the stocking assessment program proceeds.
	(ii) Enforce existing regulations with regard to the use	1990-91	District Wide with emphasis on stocked lakes	E	The Ontario Fishery Regulations prohibit the release of live

STRATEGY	TACTIC	YEAR	LOCATION	N/E	PROBLEM/ISSUE ADDRESSED
	and disposition of baitfish.				baitfish into waters other than those from which they were originally taken. Anglers, through ignorance or neglect often discard their bait in waters they're fishing, resulting in unwanted introductions which can result in reduced angling opportunities and costly lake reclamation projects. Increased enforcement efforts and public relations are required to ensure better compliance with regulations and to protect existing angling opportunities.
8. REMOVE UNDESIRABLE SPECIES FROM SPECIFIC LAKES WHERE POSSIBLE	Tweed District has a number of small deep lakes that have excellent water quality. The oxygen and temperature regimes make these lakes ideal for trout. Over the years most have been stocked and have provided excellent coldwater fisheries. The quality of some of these fisheries has declined as a result of unwanted introductions of spiny rayed fish, such as perch. These species prey on young trout and compete with older trout for food. These unwanted introductions often result in the total failure of the lake as a trout fishery and many recreational angling opportunities are lost.				
	(i)Reclaim small, accessible brook trout lakes which have good water	1989 1991	Candidate lakes include: Gibson Egg, and Little Round; additional	N	Restocking will follow reclamation, providing additional angling opportunities. An

STRATEGY	TACTIC	YEAR	LOCATION	N/E	PROBLEM/ISSUE ADDRESSED
	quality but contain competitor species		lakes based on assessment; no more than 1 per year		environmental assessment will be required.
	(ii)Stock larger trout(ie.splake and brook trout) in lakes which have competitor species but can't be reclaimed, by keeping the fish to be stocked in the hatchery until mid-summer (they are normally stocked in the spring)	1987-91	Stocked splake and brook trout lakes with competitor species ie. Granite, Elzevir and Grindstone	N	By stocking larger fish, the survival of stocked fish is better and predation may, in fact, reduce the size of the competitor population (ie. yellow perch). Limited hatchery space restricts this practice to 1 lake/year.
9. ESTABLISH A LONG-TERM STOCKING AND STOCKING ASSESSMENT PROGRAM	Fish stocking has for many years provided recreational angling opportunities. Lakes and the conditions in or associated with lakes do not always remain the same. A number of problems can arise on stocked lakes that reduce angling opportunities. For example, water quality can decline, undesirable fish species can be introduced that will compete with or predate upon the stocked fish, access can become restricted or lost and the stocked fish can lower the genetic quality of naturally reproducing populations. It is imperative that the best utilization possible be made of all stocked fish.				
	(i)Stock trout as per the District 5 year stocking requirement plan with changes incorporated as the stocking assessment program proceeds. (Appendix II)	1987-91	All stocked waters in Tweed District	E	The 5 year fish stocking plan is kept on file in the District Office and is updated annually based on the availability of fish and assessment of the suitability of the lakes to be stocked.

STRATEGY	TACTIC	YEAR	LOCATION	N/E	PROBLEM/ISSUE ADDRESSED
					This should maintain or increase present angling opportunities.
	(ii) Prepare an annual priority list of lakes requiring assessment.	1987-91	All stocked waters	N	This will ensure rational removal or addition of lakes to the stocking plan based on their suitability.
	(iii) Continue the experimental walleye stocking assessment program (E.Region, MNR) using creel surveys, index trapnetting and fall electro-fishing.	1988 1990	Sand (Plevna), Mississagagon, Marble, Big Clear	E	This assessment is part of a 5 year Eastern Region (MNR) initiative to assess the feasibility of stocking walleye summer and fall fingerlings. Ultimately, it will lead to the more efficient use of hatchery fish and more angling opportunities. The summer creel surveys assess the contribution of stocked fish to the anglers' catch; the trapnetting assesses the status of post-juvenile fish and the electrofishing determines the survival of young-of-the-year fish. In Tweed District, the assessment program is undertaken every second year.
	(iv) Assess survival and growth of stocked fish and	1988-91	Kilbourne, Wolfe, Small Clear, Mosque, Granite, Spring,	N	The survival and growth assessment involves netting for a

STRATEGY	TACTIC	YEAR	LOCATION	N/E	PROBLEM/ISSUE ADDRESSED
	determine the status of competitor species in at least 4 stocked lakes per year.		Grindstone, Simpson, Limit, Triple, Little Mosque, Shoepack, Gibson, Browns, Cedar, Eno, Feeney, Lonewolf, Longbay, Summit		sufficient period of time to accurately determine the lake's status. The assessment studies will determine what management action if any should be taken on a particular lake. For example, if competitor species are discovered the following management options may be considered; discontinue stocking, lake reclamation, or stocking larger fish that are less vulnerable to predators and competition.
	(v) Conduct late winter and late summer temperature/ oxygen tests on at least 4 stocked lakes per year to determine the quality and quantity of habitat available to trout	1987-91	Same lakes as (iv) above	N	The temperature and oxygen status of a lake directly affects the survival of stocked fish. Stocking only lakes with good water quality will ensure the best use of hatchery stock and ultimately provide more angling opportunities.
	(vi) Enhance the use of conservation officer and volunteer angler creel surveys on as many stocked	1987-91	All stocked lakes, when possible	N	Assessment of angler use and on the return of stocked fish vs. native fish to the angler's creel will reflect the success

STRATEGY	TACTIC	YEAR	LOCATION	N/E	PROBLEM/ISSUE ADDRESSED
	waters as possible				of the stocking program. Feedback will be obtained on the effectiveness of the lake trout regulations. Fish may be reallocated from lakes which are not being fished.
	(vii) Assess the success of stocking splake to divert angling pressure from lake trout lakes by conducting angler interviews (angler surveys) on splake lakes.	1987-91	Splake lakes (example, Spring, Granite, Grindstone, Egg and Machesney Lakes)	N	If splake are to be used as an alternate species to divert angling pressure away from lake trout, then this effect must be determined. The angler survey will be used in conjunction with C.O. reports and voluntary creel returns. It is suspected that some splake lakes because of their location and the survival and growth of the splake will be more successful in diverting lake trout angling than others. Lakes selected for the survey should range in their proximity to lake trout lakes, quality of access and size.
	(viii) Assess the effect of changes to	1987 1989	Lake trout/splake lakes in Division 9	N	In Division 9, the ice fishing season closed

STRATEGY	TACTIC	YEAR	LOCATION	N/E	PROBLEM/ISSUE ADDRESSED
	lake trout/splake regulations by creel surveys.	1991	and 29.		in 1987. The summer season opens on the first Sat. in June. A regulation to change the possession limit from 1 to 2 fish in Div. 29 is imminent. The creel limit for splake is to increase to 5. It is important to monitor the changes in harvest levels resulting from these regulation changes. The provision of additional angling opportunities must not result in the overharvest of lake trout.
	(ix)Assess angler use of brook trout, lake trout, splake and rainbow trout lakes using aerial surveys.	1987 1989 1991	Brook trout, brown trout, rainbow trout, splake and lake trout lakes	N	The aerial surveys should be conducted on a number of lakes at different times of day and different days of the week to accurately document the use on these lakes.
	(x)Determine the genetic make-up of lake trout from selected lakes.	1990	Lucky and Palmerston lakes	N	Electrophoresis would be used to establish stock type. A number of lake trout native populations have declined to a level where increased stocking efforts may be considered. It is important to ensure

STRATEGY	TACTIC	YEAR	LOCATION	N/E	PROBLEM/ISSUE ADDRESSED
					that the fish stocked are genetically com-
					patible with the native stocks. If the lake trout are a unique stock, then collect eggs and create brood stock for future stockings.
	(xi) Initiate an incentive program (eg. crests) to encourage return of voluntary creel records.	1990	District Wide	N	This information will assist the district in determining the utilization of stocked fish and will also assist in management decisions regarding future stocking allocations which will result in additional angling opportunities.
10. IN CONJUNCTION WITH THE MINISTRY OF ENVIRONMENT, PROTECT LAKE TROUT HABITAT	This strategy addresses the problem of the loss or degradation of fish habitat. The loss of fish habitat can lead to reduced fish populations and in the case of highly sensitive lakes, the loss of an entire population. The reduction or loss of fish populations reduces recreational angling opportunities and can reduce the opportunity for a quality cold water angling experience.				
	(i) Implement the recommendations for habitat protection described in "Inland Lake Trout Management in South Eastern Ontario," 1985.	1987-91	Tweed District lake trout lakes	N	This will give municipalities the opportunity to incorporate these changes into official plans, thereby protecting lake trout habitat and maintaining lake trout yields and angling opportunities.

STRATEGY	TACTIC	YEAR	LOCATION	N/E	PROBLEM/ISSUE ADDRESSED
11. PROTECT SENSITIVE FISHERIES HABITATS FROM DEGRADATION	Fish habitat can be degraded in a number of ways, such as by dredging and filling, shoreline development, and any other activities that add sediment or nutrients to a waterbody.				
	(i) Provide input into development plans including stream crossings, dredging, filling, shoreline alterations and cottage development.	1987-91	District Wide	E	Protection of fish habitat from the impacts of development is necessary to maintain, or in some cases enhance fish yields and associated angling opportunities.
	(ii) Encourage municipalities to enact by-laws to regulate filling and dredging activities on important private wetlands in areas where there are no conservation authority fill regulations.	1987-91	District Wide	N	This will assist in the protection of pike, muskellunge, and bass spawning areas and walleye nursery habitat thus maintaining existing fish yields and associated angling opportunities.
	(iii) Ensure municipalities obtain MNR authorization prior to issuing building permits for structures on the crown bed of lakes.	1988-91	District Wide	N	This will protect fish habitat and maintain existing yields.
	(iv) Increase enforce-	1988	District Wide	E	At the present time

STRATEGY	TACTIC	YEAR	LOCATION	N/E	PROBLEM/ISSUE ADDRESSED
	ment through the addition of a Fisheries Technician/ Conservation Officer position. Ensure that there are a minimum of 30 mandays of habitat enforcement per year.				Tweed District has insufficient staff time available to adequately protect fish habitat.
	(v) Increase public relations efforts to enhance the awareness of the public regarding fisheries habitat.	1988-91	District Wide	E	An increased public awareness of fisheries habitat should reduce the incidence of unauthorized shoreline alterations and result in increased recreational opportunities.
12. PROTECT FISHERIES HABITAT FROM WATER LEVEL FLUCTUATIONS	Water level fluctuations, particularily water drawdowns can impair production of fish species such as walleye and lake trout by stranding eggs.				
	(i) Develop water management strategies and agreements that address fisheries concerns in cooperation with agencies that control water levels.	1987-91	Mazinaw, Deerock, Lingham, Second Depot, Crotch Lakes	N	Water levels that are compatible with fish spawning, reduce egg mortality and maintain or enhance fish populations.

STRATEGY	TACTIC	YEAR	LOCATION	N/E	PROBLEM/ISSUE ADDRESSED
13. INVENTORY AND ASSESS FISH HABITAT	There are many lakes in Tweed District that very little is known about the location, condition, and quality of important fish habitat. In particular the spawning habitat on many lakes has not been assessed or mapped. There are situations where the habitat can be protected from the consequences of potential shoreline development and other situations where improvements can be made to the habitat. Improved and expanded habitat can increase fish production and ultimately provide additional recreational angling opportunities.				
	(i) Identify (map) and assess spawning areas on selected walleye and lake trout lakes.	1987 1988 1989	Walleye lakes: Crowe, Beaver, Big Clear, Mississagagon, Big Gull, Crotch, Fifth Depot, St. Andrews, Kashwakmak, Skootamatta, Malcolm, Red Horse, Canonto Lake Trout lakes: Sharbot, Hungry, Weslemkoon, Eagle, Barker, Crowe, Brule, Trout	N	This will assist in maintaining and increasing the present yield of walleye and lake trout.
	(ii) Inventory unsurveyed lakes and update lake surveys on lakes for which the information may be outdated	1989-91	Fox, Triple, Fawn, Norcan, Irvine, Mitten Little Mitten, Bruno, St. Andrews, Elbow, Cole, Little Schooner, Russell, Echo, Skootamatta, Little Mosque, Shoepack, Evelyn, Grace	E	In recent years the priority has been to inventory unsurveyed lakes, particularily cold water lakes. Some of these lakes have the potential to be stocked and others may have limitations that would prevent them from being stocked. Updated surveys provide information required to both evaluate existing management

STRATEGY	TACTIC	YEAR	LOCATION	N/E	PROBLEM/ISSUE ADDRESSED
					programs and to change, if necessary, a lake's management status.
14. ENHANCE FISH HABITAT WHERE APPROPRIATE	There are many waters in Tweed District in which the habitat can be enhanced in order to increase fish numbers and provide additional recreation opportunities. The assessment studies proposed in this plan provide the initial input required on specific lakes to carry out management activities to improve the fisheries habitat. Fisheries habitats of highest priority and having the greatest potential for improvement are spawning and nursery habitats.				
	(i)Rehabilitate, enhance or create walleye and lake trout spawning habitat where the need has been identified.	1987 1988 1990	Walleye lakes: Crowe, Beaver, Buckshot, Big Gull, Stoco, Moira, Crotch, Kashwakmak, Skootamatta, Twin Sisters, Mazinaw, Kennebec, Red Horse Lake Trout lakes: Shabomika, Big Ohlman, Eagle, Hungry, Sharbot, Palmerston	N	Rehabilitation may include adding additional rubble to existing spawning areas; cleaning up former, and/or existing spawning beds that have silted in or are covered with algae, using power pumps to blow material from around the rocks; and creating new spawning habitat in locations that have the potential to support spawning activities. This will increase yields and associated angling opportunities.
	(ii)Rehabilitate, where necessary brook trout	1990	Rawdon, Kilpecker, Bear Pond, Hydes, Louse, and Marlbank	N	Stream rehabilitation leads to better survival and utilization of

STRATEGY	TACTIC	YEAR	LOCATION	N/E	PROBLEM/ISSUE ADDRESSED
	streams.		Creeks		hatchery fish and increases a stream's ability to produce fish naturally, resulting in increased angling opportunities. Projects (ideal for CFIP) may include removal of beaver dams, stream bank stabilization, creation or improvement of spawning habitat, planting stream-side cover and establishing in-stream cover.
15. COMMUNICATE CONSERVATION PRINCIPLES AND ENCOURAGE PUBLIC INVOLVEMENT IN FISHERIES PROGRAMS	Although most anglers are interested in fishing and fisheries management, many are not knowledgeable of all aspects of fisheries management. In a number of situations anglers can unknowingly harm the fishery by such means as improper fish releases, catching fish out of season and habitat destruction. In this era of fisheries management, the public are encouraged to play a key and active role. Programs such as the Community Fisheries Involvement Program are designed to include the public in the mangement of our fisheries.				
	(i) Increase public awareness of the impact of pre-season angling on spawning bass by posting signs at access points and tourist outfitters and giving this message to anglers at fish and game club and cottage	1987-91	All bass lakes	N	The wide spread nature of this problem means that effective reduction of the problem requires a major increase in public awareness. Many of the infractions occur because anglers do not understand the problem they are causing by pre-season angling.

STRATEGY	TACTIC	YEAR	LOCATION	N/E	PROBLEM/ISSUE ADDRESSED
	association meetings.				
	(ii) Issue regular news releases and resource reports to the media and to cottage associations for their newsletters.	1987-91	District Wide	N	This will increase awareness regarding issues such as shoreline development regulations, effects of development on fisheries habitat, the impact of introductions, recipes for preparing underutilized species and programs such as CFIP.
	(iii) Continue to collect contaminant samples on select lakes and ensure the public is aware of the results	1987-91	Select lakes	E	Priority will be given to lakes that have not been sampled and to those that have shown high levels of contaminants in the past.
	(iv) Prepare a District Fishing Brochure/ Map	1987	District Wide	E	This map will show the distribution of various fish species, and will contain messages on conservation principles, habitat protection, regulations and items of general interest to anglers.
	(v) Promote underutilized species by distributing prepared samples at fall fairs.	1989	District Wide	N	This potential CFIP project would promote use of species such as burbot, whitefish, bullheads, bluegill and rock bass.

IMPLEMENTATION SCHEDULE B - TWEED DISTRICT

(PROJECTS TO BE DONE WITH ADDITIONAL STAFF AND RESOURCES)

	STRATEGY	TACTIC	YEAR	LOCATION	N/E	PROBLEM/ISSUE ADDRESSED
1.	ENSURE THE HARVEST OF SPORT FISH IS WITHIN THE ALLOWABLE YIELD	There are a number of waterbodies in Tweed District that are heavily fished in which very little or no data has been collected on the sportfish harvest. Two waterbodies of particular interest are the bass fisheries on Deerock and Lingham Lake. If the angling pressure is too high the population may in time decline resulting in a loss of recreational opportunities. Mitigative measures may have to be considered in situations of overharvest in order to maintain recreational opportunities in the future.				
		(i)Assess the impact of late winter, early spring walleye angling on walleye populations by undertaking creel surveys.	1988 1989 1990	Crotch lake	N	Concern has been expressed by many local anglers that excessive fishing occurs on Crotch Lake during late winter. Creel surveys in March, 1984 and March, 1988 indicated low harvests of walleye. For example in March 1988, there was an estimated harvest of 92 walleye. However due to the disparity in winter season closures (Feb.28 for Div.10 and March 31 for Div.29) it is essential that adequate data be obtained prior to any proposed regulation changes.

STRATEGY	TACTIC	YEAR	LOCATION	N/E	PROBLEM/ISSUE ADDRESSED
	(ii) Assess the status of important bass fisheries by conducting creel surveys	1988-91	Deerock, Lingham Lakes	N	These bass fisheries have become extremely popular in recent years and there is concern that fishing quality is declining.
2. ESTABLISH A LONG-TERM STOCKING AND STOCKING ASSESSMENT PROGRAM	Tweed District puts a tremendous amount of money and time into its fish stocking programs to provide recreational angling opportunities for the public. Fish stocking is of no value if the fish do not survive or are not utilized by the anglers. It is very important that stocked lakes be assessed for fish survival and utilization. If there is poor survival or utilization, consideration should be given to reallocating the fish to other water bodies. It is imperative that the best utilization possible be derived from all stocked fish. Very few lakes that are stocked in Tweed District have been assessed.				
	(i) Assess splake, brown trout, rainbow trout and brook trout waters for survival and growth of stocked fish, for the presence of competitor species and water quality limitations.	1988-91	Splake Lakes: Brooks, Grindstone, Machesney, Big Mair, Elzevir, Little Green Rainbow Trout Lakes: Leatheroot, Blakely, King, Chouinard, Mair, Quackenbush, Brook Trout Lakes: Twin Toor, Twin Pines, South Quinn, Evelyn, Grace, McCreary, Rettans, Spot, Raindrop, Rose, Ruby, Bear Mountain, Bullseye, McDowell, Minnow Brown Trout Waters: Summit Lake, Bolton Creek, Rawdon Creek	N	Techniques will involve gill net sets for 1-4 nights/lake. The information obtained from netting will support information obtained from other sources such as Conservation Officer reports and voluntary creel returns.

STRATEGY	TACTIC	YEAR	LOCATION	N/E	PROBLEM/ISSUE ADDRESSED
3. ASSESS FISH COMMUNITIES FOR REPRODUCTIVE STATUS AND FOR INDICATIONS OF STRESS	The spawning runs on many Tweed District lakes have not been assessed. Some waterbodies have limited natural reproduction for species such as walleye, which reduces the recreational angling opportunities available. Knowledge of the status of the spawning runs will provide fisheries management direction, such as walleye spawning bed improvement projects and stocking programs.				
	(i) Determine the status of walleye recruitment in selected lakes.	1988-91	Norcan, Mellon, Long, Kennebec, Puzzle, Skootamatta, Malcolm, Kashwakmak, Plevna, Sheldrake, Pine, Ardoch	N	These lakes historically had excellent walleye populations which have declined in recent years and it is important to determine why.
	(ii) Inventory selected brook trout streams for species composition, flow, temperature, oxygen, and spawning facilities	1990 1991	Rawdon, Kilpecker, Bear Pond, Hydes, Louse, Marlbank Creeks	N	Stream fisheries have generally been of lower priority than lake fisheries and very few streams have been surveyed. Many of these streams have the potential to support excellent fisheries. Future management actions will be determined by the results of these surveys.
	(iii) Survey brook trout lakes for areas with the potential for the creation of spawning facilities	1989 1990 1991	Brook Trout lakes	N	Surveys will include the identification of: silt-free areas with seepage during the summer with a temperature probe; silt-free areas during the fall spawning period (aerial survey); inflow

STRATEGY	TACTIC	YEAR	LOCATION	N/E	PROBLEM/ISSUE ADDRESSED
					streams that have coarse gravel or that could be dammed and used as a headwater for creating artifical seepage areas (possible CFIP project).
4. DIVERT ANGLING PRESSURE TO UNDERUTILIZED WATERS AND SPECIES	Tweed District has many waterbodies that are underutilized. The lack of use is often associated with poor access. Many are in remote locations lacking road access and others have good road access but lack appropriate boat launching facilities. Similarily many fish species in Tweed District are underutilized. Species such as, burbot, whitefish, bullhead, and panfish have traditionally been underutilized.				
	(i)Provide funding to assist in the maintenance of selected forest access roads.	1988-91	Ashby, Denigh, Miller, and Canonto townships	N	Many forest access roads are not being maintained and are degraded to a point where access is limited. Improving access would provide more fishing opportunities in the underutilized waters of these townships.
5. MONITOR THE EFFECTS OF ACIDIC PRECIPITATION ON LAKES THAT HAVE BEEN CLASSIFIED AS SENSITIVE.	Tweed District has lakes that are sensitive to acidic precipitation. These lakes are likely to continue to degrade if the present level of acidic precipitation continues.				
	(i)Encourage the Ministry of the Environment to	1987-91	Crystal, Barnard, Skootamatta Lakes	N	These lakes are extremely sensitive to acid precipitation.

STRATEGY	TACTIC	YEAR	LOCATION	N/E	PROBLEM/ISSUE ADDRESSED
	undertake regular surveys of extremely sensitive lakes and rivers in Tweed District.				The acidification of these lakes would reduce the number of angling opportunities in Tweed District.
6. ENHANCE FISH HABITAT WHERE APPROPRIATE	There are many waters in Tweed District in which the habitat can be enhanced in order to increase fish numbers and provide additional recreation opportunities. The assessment studies proposed in this plan provide the initial input required on specific lakes to carry out management activities to improve the fisheries habitat. Fisheries habitats of highest priority and having the greatest potential for improvement are spawning and nursery habitats.				
	(i)Create brook trout spawning areas where appropriate on brook trout lakes.	1990 1991	Brook trout lakes with potential to support natural reproduction.	N	In lakes, spawning brook trout tend to be attracted to natural seepage areas and inflowing streams. Many of these areas can be improved by the addition of gravel. Streams can also be dammed and used as artifical seepage areas. These are ideal CFIP projects. Improved natural reproduction would increase brook trout yields and the associated angling opportunities.

STRATEGY	TACTIC	YEAR	LOCATION	N/E	PROBLEM/ISSUE ADDRESSED
	(ii)Create bass cover using brush shelters.	1988 1990	Merrill, Freen, Whitefish, Deerock, Wadsworth, Twin Sisters, Mississagagon, Big Gull, Wolf	N	Some lakes on the Canadian Shield have an apparent shortage of bass cover. Using brush shelters would provide protective shelter and a focal point for feeding activity. This may increase bass yields and should provide increased angling opportunities.

5.0 GLOSSARY

ANGLING OPPORTUNITY

. A measure of supply to indicate the amount of use which a resource can sustain. An angling opportunity may be defined as one fishing trip not exceeding one day and usually averaging four hours in length.

ANGLING QUALITY STANDARD

. The minimum number of fish which could be expected to be caught by an angler during an average fishing trip to guarantee a satisfactory recreational experience. This standard may be expressed in fish per hour or kilograms per angler day.

ARTIFICIAL FISHERY

. A fishery which is maintained entirely through plantings of hatchery reared fish in order to provide angling opportunities.

BAITFISH

. Any member of the minnow family Cyprinidae, except carp and goldfish; the mudminnow family Umbridae; the stickleback family Gasterosteidae; the trout-perch family Percopsidae; the sculpin family Cottidae; the genus Leucichthys of the whitefish family Coregonidae and the darter sub family Etheostomatinae.

COARSE FISH

. Fish species which are not normally sought by recreational anglers. This commonly includes fish from the families Catostomidae (suckers), Ictaluridae (catfish), Gadidae (cods) and Sciaenidae (drums).

COLDWATER FISH COMMUNITY

. Fish populations comprised primarily of the families Salmonidae (trout, salmon and whitefish), Gadidae (burbot) and Clupeidae (herrings).

COMMERCIAL FISH

. Commercial fish refers to those species captured, under authority of a licence, and marketed for human consumption.

CREEL SURVEY

. A technique for enumerating and interviewing anglers to obtain information concerning fishing pressure, angler success, fish harvests and biological characteristics of angled fish.

CURRENT FISHERIES YIELD

. The current fisheries yield expresses the yield under existing

circumstances given that, due to the pressence of some underproducing waters, the total potential fisheries yield is currently not being realized.

EXOTIC FISH SPECIES

. A fish species which is neither native nor has become naturalized or self sustaining in waters within the Province of Ontario.

FISH COMMUNITY

. A combination of different fish species living and interacting together in the same body of water.

INDIGENOUS FISH SPECIES

. A fish species which was not indigenous to a particular waterbody but was introduced and has become established through natural reproduction.

NON-RESIDENT

. An angler whose principle residence is outside the province of Ontario.

OBJECTIVE

. A quantifiable and attainable end which is to be achieved.

PACIFIC SALMON

. Pacific salmon includes coho salmon, chinook salmon, kokanee salmon, pink salmon and any member of the genus Orchorhynchus.

PANFISH

. A group of secondary predator fishes comprised of species such as yellow perch, bluegill, pumpkinseed, rockbass and black crappie.

POTENTIAL YIELD

. The theoretical maximum yield that can be taken annually without exhausting the compensatory reserve of a fish community. The term is analogous to maximum sustainable yield, maximum equilibrium yield, theroetical yield and allowable yield.

PROJECTED YIELD

. The projected yield represents the estimated fisheries yield at the year 2000 and is based upon changes in fish stocks as well as realizing a proportion of the potential yield from waters currently rated as under-producing.

PULSE FISHING

. A harvest technique for commercial food fisheries and bait fisheries whereby a waterbody is exploited in only one of several years on a regular basis.

REMEDIAL ACTION PLAN

. A multiagency plan aimed at the identification, definition and mitigation of a large scale environmental problem.

RESIDENT

. An angler whose principle residence is in Ontario. A local resident angler would be one who can fish an area on a day-use basis, ie. travel to the area, fish, and return home on the same day.

RULE CURVE

. A schedule of proposed water levels, usually covering a 12 month period, in a waterbody whose water levels are controlled by a dam.

SLOT SIZE LIMIT

. A size limit which permits an angler to keep fish above a maximum size and below a minimum size, but requires to live release of all fish within the slot definition.

SOUTHERN ONTARIO

. The southern Ontario planning region includes the following districts: Algonquin Park, Alymer, Brockville, Cambridge, Carleton Place, Chatham, Cornwall, Huronia, Lindsay, Maple, Napanee, Niagara, Owen Sound, Parry Sound, Pembroke, Simcoe, Tweed and Wingham.

SPORT FISH

. Top predator fish species which are sought and may legally be taken by angling. In eastern Ontario this usally includes fish from the families Salmonidae (trout and salmon), Percidae (walleye and perch), Esocidae (pike and muskellunge) and Centrarchidae (basses).

STOCK

. A species group or population of fish which maintains and sustains itself over time and may be identified by distinct genotypic characteristics.

STRATEGY

. Planned actions or measures designed to achieve a desired end.

TACTIC

. A specified method designed to achieve one or more strategies.

TARGET

. A quantified end to be achieved or completed by a specific date.

UNDER-PRODUCING WATERS

. Lakes and/or streams which, for some reason, have been withdrawn from fish production or are not producing at their estimated biological potential.

WARMWATER FISH COMMUNITY

. Fish populations comprised primarily of the family Centrarchidae (bases), Esocidae (pike and muskellunge) and Percidae (walleye and yellow perch).

VIEWING OPPORTUNITY

. A measure of recreation supply utilized to describe the number of times a resource or facility can be used in a given time period. A viewing opportunity is considered not to be greater than one day.

6.0 REFERENCES

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5. Ontario Ministry of Natural Resources. 1985. Tweed District Fisheries Management Plan Reports.

   (i) Background Information, 1985
   (ii) Target Testing Analysis, 1985
   (iii) Evaluation and Optional Management Strategies and Tactics, 1985
   (iv) Draft Fisheries Management Plan, 1985
   (v) Summary of Public Consultation, 1986

6. Ontario Ministry of Natural Resources, 1985. Inland Lake Trout Management in South Eastern Ontario and Eastern Region.

APPENDIX I

SUMMARY OF PUBLIC INPUT INTO TWEED DISTRICT FISHERIES MANAGEMENT PLAN

Summary of Public Consultation

Public consultation in the preparation of the Tweed District Fisheries Management Plan began with the distribution of a summary of Background Information and Optional Strategies with an attached questionnaire asking for comment on specific issues. This was followed by a public meeting at Cloyne in January 1986 which attracted 54 people. At that time the public was asked to comment on the accuracy of the background information compiled by the Ministry and to provide any additional knowledge they had of the fisheries resource and raise any problems or issues they felt should be addressed in the plan.

A total of 110 summaries of Background Information and questionnaires were distributed to various groups and individuals with an interest in the long term management of the fisheries resource. This included government agencies, municipalities, special interest groups (Fish and Game Clubs and Cottager Associations) and private individuals who expressed an interest in the planning process.

Based on the analysis and evaluation of the comments received both verbally and via questionnaire (22 received), the draft fisheries plan was prepared.

Further public consultation was conducted through the distribution of the draft plan for public review and through a public meeting that was held in September 1986 to explain the proposed management directions. There were approximately 70 people in attendance at the public meeting held in Cloyne and excellent input was received and noted. The District continued to receive comments on the draft fisheries management plan for several months after the first draft was circulated. This input has been used to prepare the final Fisheries Management Plan.

Public Input into the Tweed District Fisheries Management Plan is summarized in the following Table.

TABLE I

Summary

of

Public Input into Tweed District Fisheries Management Plan

Comments or Concerns	Suggested Recommendations
1. Waterfront development	
- silt problems - township conflicts because of the money at stake	- M.N.R. should put more pressure on various government agencies to control development
	- stricter rules regarding development on waterfronts
	- public education
- shoreline restoration	- M.V.C.A. is planning a shoreline restoration program
- shoreline work	- M.V.C.A. plans to enact dredge and fill regulations
2. Inconsistency in water quality standards and recommendations i.e. Buckshot Lake is classified as a Lake Trout lake and development is restricted, but is not managed for Lake Trout.	- reclassify lakes on the Lake Trout sensitivity list. i.e. the MNR/MOE report on water quality to better reflect MNR management priorities
3. Overharvest	
(i) Walleye - walleye lakes in general - harvesting too many big females in March	- close walleye season on Feb. 28 in Divisions 9, 10, and 29
- walleye in Crotch Lake in March	- would like March season closed on Crotch Lake (Division 29)
- too many walleye caught on Redhorse Lake in March Division 29	- cut walleye season back by 2 weeks (mid-March) on Crotch Lake and Division 29
- Redhorse Lake is overfished at beginning of season.	

Comments or Concerns	Suggested Recommendations
- Malcolm Lake overfished 5-6 yrs. ago, not now	
- Mississagagon may have been overfished years ago, not now	
(ii) Lake Trout	- open lake trout, speckled trout and splake on the second Sat. of March
- too much fishing pressure on lake trout	- lake trout should close on March 31 and reopen June 1
	- lake trout regulations - 1 line, 1 fish, no herring
	- splake regulations - 2 lines, 5 fish, no herring
	- speckled trout - 2 lines and 7 fish limit
	- should keep the lake trout season closed for 2 - 3 years
	- summer daily limit for lake trout of 1
- too much fishing pressure on Weslemkoon Lake in early June	
4. Declining Lake Trout populations	- research needed to compare stocked lake trout to native fish
	- if fish stocks different then use a CFIP project to hatch local native lake trout eggs and release fingerlings into necessary lakes
	- introduce the quota tag system in Division 9 and 10 that was recommended by the Lake Trout Study Group
5. Too many Lake Trout put in Lake Ontario and not enough in inland lakes	- stock more lake trout in the inland lakes

Comments or Concerns	Suggested Recommendations
6. MNR should be consistent in its classifications of lake trout and lake trout lakes	
7. Declining walleye populations	- continue to stock walleye under the CFIP program
	- size limit on walleye
	- smelt a problem on Skootamatta Lake, MNR should research problem and do something about it
	- stock more walleye i.e. - Mississagagon, Beaver, Horseshoe, Canonto, Big Clear, Sharbot, Norcan, Redhorse, Sunday, Kashwakamak, Skootamatta, Mazinaw, Big Mellon, Lime, Ingellsby, Denbigh, Marble, Gunter, Wadsworth, Big Gull
8. Introduced walleye have resulted in the decline of Lake Trout populations on Kashwakamak, Mississagagon, Fortune	- control the introduction of walleye into lake trout waters
9. Speckled trout are taken out too small	- should allow speckled trout to grow larger before they are removed. i.e. close season for 1 year after stocking
10. Habitat for speckled trout and lake trout is very important	- plan should provide protection of habitat for lake trout, and speckled trout (i.e. it specifically only mentions pike and bass marsh areas)
11. Stocked lakes are not producing as well as they should be	
Ex.-	
- Mosque, Wolf, King	- stock with splake instead or some other species i.,e. brown trout
- Small Clear, Little Wolf not producing	

Comments or Concerns	Suggested Recommendations
- Nowlan, Duncan, Bailey, Rainy, Reids, Craig - too inaccessible	- discontinue stocking
- Stewart Long - winter kill	- reclaim it
- Mosque Lake should not be stocked with rainbow trout	- stock with Lake Trout
- problems with many speckled trout lakes is coarse fish in them (i.e. predation and competition)	- reclaim more brook trout lakes
12. Trout lakes not stocked, but should be	- stock more lakes with trout
i.e. Ink Lake (Olden Twp.)	
- Graham Lake (Miller Twp.)	
- Phils Lake (Miller Twp.)	
- Stewart Long - brown trout	
- Mink Lake	
- Kirkwood (S. Canonto)	
- Bear (Ostler)	
13. Lack of knowledge of MNR programs	- M.N.R. should make more effort to ensure the public is fully aware of its programs
14. Public Involvement	
(i) M.N.R. does not make enough use of cottage associations to disseminate information.	- use cottage associations more to get information to public
(ii) M.N.R. does not enlist the help of the public enough in its programs	- enlist help of clubs to help with with fish stocking

Comments or Concerns	Suggested Recommendations
Ex. Ompah Conservation Association wants to assist with fish stocking.	
	- clubs and organizations can assist M.N.R. with lake reclamations
	- cottage associations could help perform creel surveys
15. Many stocked trout lakes have undesirable fish in them which reduce the quality of the fisheries	- reclaim lakes
	- ban use of bait fish in lakes where there is not already undesirable fish in the lakes
16. Illegal fishing	- more conservation officers needed
Ex. Big Gull Lake	- more enforcement effort during specific times of year - pre-season bass fishing, walleye spawning runs, etc.
- Deerrock Lake - pre-season bass angling	
- Redhorse Lake - night lines found in April.	
- King Lake - gill netting	- air surveillance during the fall and during cottage season should be carried out
- Brule, Fortune, Big Ohlman - lake trout poaching	
- Hungry Lake - lake trout	
- Mink Lake - pre-season bass	
- Kellar Lakes - winter pike season (overlimits)	
- Kennebec Lake - at bridge, set lines	
- Eagle Lake, Sharbot Lake - lake trout	
- Crotch Lake - set lines, too many lines in winter	
17. More money required for fisheries management work	- non-resident licence money should go into fisheries management

Comments or Concerns	Suggested Recommendations
18. Want size limits	- size limit on bass - size limit on walleye
19. Do not want size limits - forces angler to eat large contaminated fish - releasing fish results in severe hooking mortality	- do not enact size limits
20. Concerned about water quality and levels of contaminants in fish	- water quality and contaminants in fish should be a higher priority to MNR.
21. MNR manages the fisheries without enough public input	- local taxpayers should have more say in fish management decisions
22. Concerned about the effects of various chemical sprays on water quality and on fish	- enact stricter regulations for the public on the use of chemical sprays around water
23. MNR does not put enough emphasis on habitat	- MNR should put more emphasis on habitat
24. Don't agree with baitfish bans	
25. Do agree with baitfish bans	
26. Don't agree with promoting alternate species such as ling	
27. Do agree with promoting alternate species	- more promotion of alternate species
28. Some timber operations causing harm to fisheries	- more control on timber operations with regard to work near streams and lakes
29. MNR spends too much time on fish species that are not top priority for this area i.e. lake trout, speckled trout, rainbow trout, splake	- MNR should spend more time managing walleye, bass and pike. These are the most important species for the tourist industry

Comments or Concerns	Suggested Recommendations
30. Poor quality hatchery fish	- MNR should produce more fish, and bigger fish to stock all species that are presently stocked
31. Newspapers and magazines often have confusing articles regarding new legislation and seasons etc.	- MNR should do better job of getting information to the media so new regulations and seasons, etc., will not be confusing to the public
32. Regulations not consistent from one Division to another. Ex. in Division 29 the walleye season closes on March 31 and in Division 10 it closes on February 28	- all seasons should be consistent, i.e. Division 29 walleye season should close on February 28 to match Division 10
33. Beaver are a problem to fish - flooding spawning beds - blocking migration up streams - adding nutrients	- more beaver control - introduce a bounty on beaver
34. District information is outdated on most lakes	- update district lake survey information
35. Too much nutrient input into lakes from septic systems and garbage	- better control of nutrients into lakes. - all septic systems should be up to standards
36. Many stocked lakes have access that is difficult for the average angler i.e. need snowmachine or four wheel drive	- improve access or do not stock as many remote lakes and put more fish in lakes that are easily accessed

APPENDIX II

STOCKED WATER IN TWEED DISTRICT

APPENDIX III

STOCKED WATERS IN TWEED DISTRICT AND APPROXIMATE NUMBERS

LAKE TROUT (PLANTED ANNUALLY)	SPLAKE (PLANTED ANNUALLY)	RAINBOW TROUT (PLANTED ANNUALLY)	BROOK TROUT (PLANTED ANNUALLY)	BROOK TROUT (PLANTED BIANNUALLY)	BROWN (PLANTED ANNUALLY)
ASHBY (3500)	BIG MAIR (1000)	BLAKLEY (800)	ANTOINE CREEK (1000)	BAILEY (800)	SUMMIT (2000)
ASHDEN (1500)	BROOKS (1000)	KILBOURNE (700)	BON ECHO CREEK (500)	BIG BIRCH (1500)	
BARKER (1500)	EGG (2000)	LEATHEROOT (900)	GRAHAM (1000)	BROWNS (1000)	
BIG OHLMAN (1000)	ELZEVIR (1000)	LITTLE ROUND (1000)	HYDES CREEK (1000)	BULLSEYE (500)	
BRULE (4500)	GRANITE (3500)	MAIR (2600)	KILPECKER CREEK (800)	BUTTERNUT (800)	
CROW (2000)	GRINDSTONE (3000)	MOSQUE (3500)	LITTLE ROUND (1000)	CAMP (500)	
DICKEY (4500)	LIMIT (1500)	WOLFE (3350)	MARLBANK CREEK (500)	CEDAR (500)	
EAGLE (6600)	LITTLE LONG (500)		NORTH QUINN (3000)	CRANBERRY (500)	
FOX (500)	LITTLE MACKIE (2000)		O'HARA POND (1000)	CROKER (1000)	
GRIMSTHORPE (2000)	LITTLE YIKKIE (500)		RAWDON CREEK (800)	CROOKED (800)	
HUNGRY (2000)	MACHESNEY (2000)		ROCK (1500)	END (500)	
LITTLE GREEN (1000)	McCAUSLAND (1000)		SOUTH QUINN (2200)	EVELYN (800)	
LONG MALLORY (1500)	SIMPSON (1000)		SPRING (800)	FEENY (800)	
LOYST (500)	SPRING (5000)		SULLIVAN (2500)	GIBSONS (800)	
LUCKY (2000)				GRACE (500)	
MACKIE (1500)				GREGGS (500)	
MAIR (1000)				HEMLOCK (800)	
MAZINAW (20000)				HORSESHOE (500)	
McCAUSLAND (2000)				HUNGRY (800)	
OTTER (1000)				KITCHEN (500)	
REID (3000)				LITTLE BIRCH (800)	
ROUND SCHOONER (3000)				LITTLE MOSQUE (1000)	
SHABOMEKA (3000)				LONE WOLF (500)	
SHARBOT (6600)				LONGBAY (1500)	
SIMPSON (1000)				MARSHALL (1000)	
THANET (3000)				McCREARY (1500)	
TROUT (1500)				MINNOW (800)	
WESLEMKOON (6000)				MOUSSEAU (1000	
				NORTHEAST (500)	
				NOWLAN (800)	
				OTTER (500)	

CONTINUED PAGE 2

LAKE TROUT (PLANTED ANNUALLY)	SPLAKE (PLANTED ANNUALLY)	RAINBOW TROUT (PLANTED ANNUALLY)	BROOK TROUT (PLANTED ANNUALLY)	BROOK TROUT (PLANTED BIANNUALLY)	BROWN (PLANTED ANNUALLY)
				PAYES (800)	
				PARKHURST (1000)	
				RAINDROP (1000)	
				RAINY (500)	
				RETTAN'S (800)	
				ROCKCLIFF (600)	
				ROSE (800)	
				RUBY (500)	
				SHOEPACK (800)	
				SNOWSHOE (500)	
				SOUTH PORTAGE (1000)	
				SPOT (1000)	
				STRADDLEBUG (800)	
				THIRTY-EIGHT (500)	
				TOOR (700)	
				TRIPLE (500)	
				TWIN TOOR (1000)	
				WEST TWINPINE (800)	
TOTALS					
89,200	25,000	12,850	17,600	38,400	2,000

APPENDIX III

LAKE TROUT/SPLAKE CLASSIFICATION

(ACCORDING TO REGULATIONS)

EASTERN REGION

LAKE TROUT/SPLAKE LAKE CLASSIFICATION (ACCORDING TO REGULATIONS)
- EASTERN REGION -

DIVISION 9

LAKE TROUT WATERS	SPLAKE WATERS
BIG CLEAR L.	BOB'S LAKE (GREEN BAY)
BIG SALMON L.	BUCK NORTH L.
BIRCH L.	GARTER L.
BUCK L.	LITTLE CLEAR L.
CANOE L.	POTSPOON L.
CROW L.	THIRTY ISLAND L.
DESERT L.	WHITE L.
DEVIL L.	BROOKE L.
EAGLE L.	NAPIER L.
GOULD L.	CRONK L.
KNOWLTON L.	DOE L.
LOUGHBOROUGH L.	DRAPER L.
LOYST L.	LITTLE SALMON L.
SHARBOT L.	DOG L.
	LEO L.
	UPPER ROCK L.

DIVISION 10

LAKE TROUT WATERS	SPLAKE WATERS
BIG RIDEAU L.	PERCH L.
CHARLESTON L.	ROUND L.
RED HORSE L.	INDIAN L.
SILVER L.	OTTER L.
	DAVERN L.
	FARREN L.

DIVISION 29

LAKE TROUT WATERS	SPLAKE WATERS
ASHBY L.	BROOKS L.
ASHDEN L.	SPRING L.
BARKER L.	LITTLE YIRKIE L.
BARNARD L.	LITTLE LONG L.
BIG OHLMAN	MACHESNEY L.
CRYSTAL L.	GRINDSTONE L.
KISHKEBUS L.	BIG MAIR L.
LUCKY L.	EGG L.
MACKIE L.	GRANITE L.
OTTER L.	LABINE L.
PALMERSTON L.	
ROUND SCHOONER L.	
SHABOMEKA L.	
TROUT L.	
WENSLEY (BRULE) L.	
WESLEMKOON L.	
HUNGRY L.	
JOEPERRY L.	
MOSQUE L.	
MAZINAW L.	
EFFINGHAM L.	
LONG MALLORY L.	
REID L.	
LITTLE GREEN L.	
LITTLE MACKIE (CAMP) L.	
McCAUSLAND L.	
RAINY L.	
SIMPSON L.	
FOX L.	
MAIR L.	

REVISED LAKE TROUT REGULATIONS
- EASTERN REGION -

		DIVISION		
		9	10	29
OPEN SEASON	LAKE TROUT	FIRST SATURDAY IN JUNE TO SEPTEMBER 8	FIRST SATURDAY IN JUNE TO SEPTEMBER 8	SECOND SATURDAY IN MARCH TO SEPTEMBER 8
	SPLAKE	FIRST SATURDAY IN FEBRUARY TO THIRD SUNDAY IN FEB. (2 WEEKS) AND SECOND SATURDAY IN MARCH TO NOV. 30	FIRST SATURDAY IN FEBRUARY TO THIRD SUNDAY IN FEB. (2 WEEKS) AND SECOND SATURDAY IN MAR. TO NOV. 30	SECOND SATURDAY IN MARCH TO NOV. 30
POSSESSION LIMITS	LAKE TROUT	2	2	2 (ALL YEAR)
	SPLAKE	5	5	5
BAIT RESTRICTIONS		YEAR ROUND BAN ON THE USE OF HERRING AS BAIT		

--> REGULATIONS SHOULD BE GAZETTED BY OCT-NOV AND BECOME EFFECTIVE ON JANUARY 1/89